YELLOW STARTHISTLE

Centaurea solstitialis L.

DESCRIPTION: Yellow starthistle is an annual herbaceous plant in the aster family (Asteraceae). Plants are gray-green to blue-green, grow from 6 in. to 5 ft. (15 cm to 15 dm) in height, and have deep taproots. Flowers are bright yellow with sharp spines surrounding the base, giving the plant a particularly menacing appearance and a painful response if touched. Stems and leaves are covered with cottony wool. Basal leaves are 2 to 3 in. (6 – 7 cm.) long and deeply lobed. Upper leaves are short (0.5 to 1.0 in.; 1 to 2.5 cm) and narrow, with few lobes.

DISTRIBUTION IN THE UNITED STATES: Yellow starthistle is a strong invader that occurs in forty-one of the United States. Yellow starthistle is most concentrated in California, where the plant infests nearly 12 million acres of rangeland and wildland. It is also reported to be invasive in natural areas of Idaho, Oregon, New Jersey, Utah, and Washington, and five western national parks - Death Valley National Park, Glen Canyon National Recreation Area, Redwood National Park, Sequoia and Kings Canyon National Parks, and Yosemite National Park.

HABITAT: Plants typically thrive in full sunlight and deep, well-drained soils, where annual rainfall is between 10-60 inches, and is especially common in disturbed areas such as roadsides. It chokes out the native plants, reducing biodiversity, and wildlife habitat and forage.

BIOLOGY & SPREAD: Spread of yellow starthistle is by seed and each seed head can produce from 35 to approximately 80 seeds. However, the seeds have no wind-dispersal mechanisms so few seeds move more than two feet from the parent plant without assistance.

CURRENT MANAGEMENT APPROACHES: When driving, walking, or moving livestock through infested areas, clothing, vehicles, and animals should be inspected and cleaned to remove any seeds before continuing on into uninfested areas.

>**Biological Control:** Six biological control insects have been released in the United States for yellow starthistle control: Bangasternus orientalis, Eustenopus villosus, Urophora jaculata, Urophora sirunaseva, Larinus curtus, and Chaetorellia australis. Of these, five became established and three (B. orientalis, U. sirunaseva and E. villosus) are widespread. Also, the accidentally introduced fly, Chaetorellia succinea has a strong affinity to yellow starthistle and is found almost everywhere yellow starthistle occurs. All of these insects attack the seed head of yellow starthistle, effectively limiting the number of seeds the plants are able to produce. Current research indicates that the insects have reduced seed yield by at least 50%. The rust fungus, Puccinia juncea var. solstitialis was released in California in 2003. It is too early to know if this rust will establish and eventually cause high mortality of yellow starthistle in the wild. Several more fungi and insects are currently being tested for introduction into the United States.

>**Chemical Control:** Application of the systemic herbicides clopyralid or picloram between December and April seems to be the most effective. Application during the winter encourages the growth of other, more desirable, plants.

>**Mechanical Control:** Mowing is effective during the early flowering stage or when most buds have produced spines. However, it is only successful when no leaves are present below the level of the cut.

>**Grazing:** Sheep, goats, and cattle graze on yellow starthistle in early spring, before the flower's spines develop. Goats also graze plants in the spiny or flowering stages. Grazing reduces biomass and seed production.

REFERENCES: www.nps.gov, www.invasive.org